

Konrad Schmid / Christoph Uehlinger (eds.)

# Laws of Heaven – Laws of Nature

Legal Interpretations of Cosmic Phenomena  
in the Ancient World

## Himmelsgesetze – Naturgesetze

Rechtsförmige Interpretationen kosmischer  
Phänomene in der antiken Welt

Academic Press Fribourg  
Vandenhoeck & Ruprecht Göttingen

## *Bibliografische Information der Deutschen Bibliothek*

Die Deutsche Bibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

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Schweizerische Gesellschaft für Orientalische Altertumswissenschaft  
Société suisse pour l'étude du Proche-Orient ancien  
Swiss Society for Ancient Near Eastern Studies



Publiziert mit freundlicher Unterstützung  
der Schweizerischen Akademie  
der Geistes- und Sozialwissenschaften

Gesamtkatalog auf Internet:

Academic Press Fribourg: [www.paulusedition.ch](http://www.paulusedition.ch)  
Vandenhoeck & Ruprecht, Göttingen: [www.v-r.de](http://www.v-r.de)

Text und Abbildungen wurden von den Herausgebern  
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Vandenhoeck & Ruprecht Göttingen

ISBN: 978-3-7278-1773-1 (Academic Press Fribourg)  
ISBN: 978-3-525-54405-1 (Vandenhoeck & Ruprecht)  
ISSN: 1015-1850 (Orb. biblicus orient.)

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## Vorwort

Das wissenschaftsgeschichtliche Gedächtnis des Abendlandes erkennt die Ursprünge der Idee von ‚Naturgesetzen‘ bei den Vorsokratikern, Platon und der Stoa. Doch trifft diese Annahme nicht zu. Interpretationen kosmischer Phänomene in Kategorien eines rechtsförmig geordneten Regelsystems sind im Alten Orient zum Teil erheblich früher belegt. In der Hebräischen Bibel ist etwa die Rede davon, dass Gott („Jahwe“) der Sonne, dem Mond und den Sternen „Gesetzesordnungen“ (*huqqôt, huqqîm*, Jeremia 31,35f) auferlegt, dass er „Gesetzesordnungen“ (*huqqôt*, Jeremia 33,25) für Himmel und Erde festgelegt oder dass er „Himmelsgesetze“ (*huqqôt šāmayîm*, Hiob 38,33) bestimmt habe. Die Natur und vor allem der Himmel sind also nicht als dynamische und/oder autonome Gebilde gesehen, die regellos funktionieren; vielmehr gelten sie als der gesetzgeberischen, anordnenden Aktivität Gottes unterworfen, der, wie der Kontext dieser Stellen deutlich festhält, ihre Regelmässigkeiten, etwa den Wechsel von Tag und Nacht, die Mondphasen oder die Sternbewegungen festgesetzt haben soll. Nun hat das Alte Testament diese Vorstellung einer autoritativ gesetzten Ordnung kosmischer Zusammenhänge nicht erfunden, sie ist vielmehr in mesopotamischen Texten bereits vorgedacht worden. Die fünfte Tafel des babylonischen Welterschöpfungsepos *Enūma eliš* beschreibt die Regelmässigkeit der Sternbewegungen und des Mondlaufs als Resultat gesetzgeberischer Anordnung des babylonischen Hauptgottes Marduk.

Dass es gesetzmässige Regularitäten in der himmlischen und natürlichen Welt gibt, ist die Grundvoraussetzung dafür, dass die Himmels- oder Naturbeobachtung als extrapolationsfähig gilt: Wer auf den Himmel oder Vorgänge der Natur achtet, kann vorausbestimmen, was geschehen wird. Das im Alten Orient florierende Divinationswesen baut der Sache nach auf eben dieser Überzeugung auf. Die altorientalische und biblische Überlieferung bietet genügend Beispiele für rechtsförmige Interpretationen von Himmels- und Naturphänomenen. Allerdings erfolgte die rechtliche Interpretation natürlicher und kosmischer Phänomene im vorachaimenidischen Vorderasien entsprechend dem damaligen Rechtsverständnis, wonach das Recht nicht als dem Machthaber übergeordnet, sondern als ihm untergeordnete Grösse gilt. Recht war hier keine feststehende, konstante Grösse, sondern ein formbares Herrschaftsinstrument eines altorientalischen Königs. Entsprechend ist die rechtsförmige Interpretation von Himmels- und Naturphänomenen im Alten Orient und im antiken Israel anders konturiert als in der klassischen griechischen Polis, und anders auch als in der europäischen Neuzeit: Himmel und Natur folgen der gesetzgeberischen Aktivität des

jeweiligen Höchsten Gottes, sie könnten es aber – das ist, wenn auch nicht vorgesehen, so doch prinzipiell denkbar und möglich – auch *nicht* tun.

Die Vorstellung konstanter ‚Naturgesetze‘, die keiner Veränderung unterworfen sind, hat deshalb wohl einen tiefgreifenden Wandel des Rechtsverständnisses zu ihrer Voraussetzung, der sich einerseits in den frühen Demokratien Griechenlands, andererseits auch im nachstaatlichen Juda der Perserzeit zeigt: Recht wird in diesen postmonarchischen Gesellschaften nun neu verstanden als eine normative Instanz, die aus sich selber heraus bindende Wirkung hat. Erst im Gefolge solcher rechtsgeschichtlicher Neuinterpretationen konnte sich die Vorstellung einer durchgehend ‚naturgesetzlichen‘ Verfasstheit der Welt etablieren. Diese wiederum zog in der frühen Neuzeit die Ausbildung der Vorstellung eines für alle Menschen gleicherweise geltenden Naturrechts nach sich, das auch aller menschlichen Gesetzgebung zu Grunde liegen müsse.

Die Beiträge des vorliegenden Bandes sondieren die Thematik vor allem in den früheren Phasen ihrer altorientalischen und biblischen Formulierung. Sie gehen zurück auf eine Tagung in Zürich vom 5.-6. September 2011, die von der Theologischen Fakultät der Universität Zürich in Zusammenarbeit mit dem Universitären Forschungsschwerpunkt Asien und Europa und der Schweizerischen Gesellschaft für orientalische Altertumswissenschaft veranstaltet wurde. Wir danken den beitragenden Autorinnen und Autoren für ihre Mitarbeit und die Geduld angesichts der verzögerten Drucklegung. Phillip Laster hat zur redaktionellen Vereinheitlichung und Formatierung der Beiträge beigetragen.

Wir danken der Theologischen Fakultät der Universität Zürich, dem Universitären Forschungsschwerpunkt Asien und Europa, dem Schweizerischen Nationalfonds für wissenschaftliche Forschung, der Schweizerischen Gesellschaft für orientalische Altertumswissenschaft für ihre Unterstützung bei der Durchführung der Tagung, der Schweizerischen Akademie der Geistes- und Sozialwissenschaften für ihren Beitrag zur Finanzierung der Druckkosten.

Gewidmet sei der Band dem Andenken an Walter Burkert, der am 11. März 2015 im Alter von 84 Jahren verstorben ist. Ordinarius für Klassische Philologie an der Universität Zürich von 1969 bis zu seiner Emeritierung 1996, hat Burkert wie kaum ein zweiter Forscher des 20. Jahrhunderts zur kritischen, quellengestützten Überwindung dichotomer Gegenüberstellungen von orientalischer und griechisch-römischer Antike insbesondere im Bereich der Religionsgeschichte beigetragen. Ein wichtiger Ausgangspunkt seines wissenschaftlichen Schaffens war die Auseinandersetzung mit

Pythagoras gewesen, in dessen Werk er die Beziehung zwischen mathematisch-naturwissenschaftlicher und religiöser Weltdeutung umfassend analysierte. Mit seinen international gefeierten Standardwerken zur griechischen Religion und zum Kulturtransfer zwischen Orient und Griechenland hat er weit über den Bereich der Klassischen Philologie hinaus gewirkt. Über zwei Jahrzehnte lang hat er in Zürich an der Akkadischlektüre teilgenommen, die unsere Fakultät im Rahmen von Lehrveranstaltungen zur altorientalischen Religionsgeschichte anbietet, und blieb uns so ein wertvoller Gesprächspartner weit über die Emeritierung hinaus. Als 1977 die Schweizerische Gesellschaft für orientalische Altertumswissenschaft gegründet wurde, war er von Anfang an ganz selbstverständlich dabei. Mehr als 30 Jahre lang hat er der Gesellschaft die Treue gehalten, sei es als Vorstandsmitglied, Referent und Autor oder regelmässiger Besucher der Studientage. Gerne und dankbar erinnern wir uns daran, dass er auch im September 2011 an der in diesem Band dokumentierten Tagung unter uns war und, gewohnt kenntnisreich und pointiert, mitdiskutierte.

Zürich, im Oktober 2015

Konrad Schmid  
Christoph Uehlinger





## Laws from “Heaven” to “Nature”: Some Afterthoughts

Christoph Uehlinger\*

As revised versions of papers from a stimulating colloquium held in September 2011 under the auspices of the University of Zurich’s Faculty of Theology, the University’s Priority Research Program “Asia and Europe” and the Swiss Society of Ancient Near Eastern Studies, the articles in this volume have in common that they all in some way address the relationship between, on the one hand, concepts of “law” and “order” and, on the other hand, concepts of “heaven and earth,” the “cosmos” or “nature.” The articles do so from different angles and viewpoints, which are determined not only by the nature of textual sources they examine (which differ in language, genre, scope, original *Sitz im Leben*, preservation and transmission), but also by the peculiar expertise and specific research question, disciplinary background and personal interests of the contributors. These factors make every article in this book a highly original contribution. Looking back at the conference from some distance and from the privileged viewpoint of an editor who has read and re-read the papers in view of their publication, I shall neither summarize what my colleagues have aptly argued in their articles nor squeeze their contributions into an artificial grid of common research questions, let alone simple answers. What strikes me at the end of our journey is the variety of what *we* called “law-like interpretations of nature” in our conference invitation, the variety of ways in which ancient Near Eastern scholars, teachers, seers and especially scribes (among whom were not a few Judahites) sought to conceptualize and correlate what they conceived as “law,” “heaven” and “earth,” considering what they thought to be one reality shared by deities and humans, even if only partly understood by the latter. In what follows, I shall limit myself to comment on what I—admittedly very subjectively—perceive to be particularly interesting insights and some open questions that might merit further exploration.

One aim of our colloquium was to remind historians that science and the scholarly investigation of the physical world did not start with the Greeks. This point is a truism for anyone working in a discipline that studies the ancient Near East. But it has not attained the desired status of common sense, even among historians of antiquity, let alone scientists with an interest in ancient history.<sup>1</sup> Laymen and scholars living in ancient Mesopotamia,

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\* Many thanks to Phillip Lasater (Zurich) for improving my English style.

<sup>1</sup> On ancient Near Eastern “science,” see M. Clagett, *Ancient Egyptian Science. A Source Book* (Memoirs of the American Philosophical Society 184; Philadelphia: American Philosophical Society, 1989); N. M. Swerdlow, *The Babylonian Theory of the Planets*

Egypt or the Levant were of course able for millennia to recognize regularities in the physical world they inhabited if only because a prosperous society, and large cities more so than villages, depended on informed compliance with resources such as water, soil, seeds or livestock. They recognized early that “natural phenomena”<sup>2</sup> followed particular rules, not all of which were immediately beneficial to human civilization, to be sure. Such recognition ranged from the most obvious (e. g., periodical changes of light and dark, day and night, hot and cool, wet and dry) to the more complex (e. g., seasonal change and the accompanying behavior of animals and vegetation) and even the sophisticated (e. g., the ways of the stars and constellations). They were able to formalize what they experienced and observed in terms of conditional formulae (“if A, then B,” or protasis-apodosis constructions),<sup>3</sup> which did not necessarily express cause and effect but regularity and sometimes coincidence or periodic intervals. Yet they often formulated things in sociomorphic terms, considering the world in which they lived as one governed not by abstract, self-explanatory (let alone autonomous) law but by divine will—whether of a multitude of potentially conflicting deities and demons; a single creator god or supreme divine king ordering everything according to his master plan; or combinations of these two (such as in this book’s most often-quoted epic, *Enūma eliš*). That under such conditions, ancient Near Easterners should have conceptualized what we call “nature” in terms of law and order, governance and power, rule and ordi-

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(Princeton, NJ: Princeton University Press, 1998; repr. Princeton Legacy Library, 2014); id., *Ancient Astronomy and Celestial Divination* (Cambridge, MA: MIT Press, 1999); H. Hunger / D. Pingree, *Astral Sciences in Mesopotamia* (HdO I,44; Leiden: Brill, 1999); D. R. Brown, *Mesopotamian Planetary Astronomy-Astrology* (Cuneiform Monographs 18; Groningen: Styx, 2000); V. Katz (ed.), *The Mathematics of Egypt, Mesopotamia, China, India and Islam. A Sourcebook* (Princeton, NJ: Princeton University Press, 2007); F. Rochberg, *In the Path of the Moon. Babylonian Celestial Divination and Its Legacy* (Studies in Ancient Magic and Divination 6; Leiden: Brill, 2010); Ch. Burnett (ed.), *Studies in the History of the Exact Sciences in Honour of David Pingree* (Islamic Philosophy, Theology and Science. Texts and Studies 54; Leiden: Brill, 2011); G. J. Selz / K. Wagensohn (eds.), *The Empirical Dimension of Ancient Near Eastern Studies / Die empirische Dimension altorientalischer Forschungen* (Wiener Offene Orientalistik, 6; Vienna: Lit-Verlag, 2011); H. Neumann (ed.), *Wissenskultur im Alten Orient. Weltanschauung, Wissenschaften, Techniken, Technologien* (CDOG 4; Wiesbaden: Harrassowitz, 2012). On 20<sup>th</sup>-century history of ancient science and one of its giants, see now A. Jones / C. Proust / J. M. Steele (eds.), *A Mathematician’s Journeys: Otto Neugebauer and Modern Transformations of Ancient Science* (Archimedes: New Studies in the History and Philosophy of Science and Technology 45; New York: Springer, 2016).

<sup>2</sup> D. J. W. Meijer (ed.), *Natural Phenomena. Their Meaning, Depiction and Description in the Ancient Near East* (VNAW, n. r. 152; Amsterdam: Royal Netherlands Academy of Arts and Sciences, 1992).

<sup>3</sup> J. C. Fincke, “Omina, die göttlichen ‘Gesetze’ der Divination,” *JEOL* 40 (2006–2007), 131–147; cf. F. Rochberg, *In the Path of the Moon* (n. 1), 373–410, and this volume, pp. 37f.

nance does, after all, not come as a surprise. Nonetheless, it is worthwhile and sometimes necessary to state the obvious (with all due respect to the “blind”):<sup>4</sup> Ancient Near Eastern texts, including biblical texts, have a word to say on the pre-history of “laws of nature” (and also on the pre-history of “natural law,” as F. Rochberg aptly reminds us).<sup>5</sup>

That being said, K. Schmid is right to state that the investigations performed in this volume would make little sense if they were only to prioritize one civilization or the best of its scholars over others (Assyrians over Ionians, Egyptians over Greeks, etc.) in the discovery of “laws of nature,” “natural law,” or “science” as it were.<sup>6</sup> Not only are such claims intellectually sterile, but they also depend largely on matters of definition, matters that are often arbitrary, sometimes anachronistic, and always disputable: Under what conditions should we speak of “science” (including or excluding “scholarship,” mere “learning” or the “wisdom” of the “sages”),<sup>7</sup> of “laws,” of “nature?” I vividly recall that at the end of our conference, some participants regretted that the very concept of “nature” had remained somewhat underanalyzed in our discussions, having hid behind what *we* moderns take to be “nature” or “natural phenomena,” as well as what *we* say in more ancient terms such as “cosmos,” or “creation.” Can we speak at all about “laws of nature” as long as the concept is used in a “dynamic” (K. Schmid), anthropomorphic, and sociomorphic (i. e., metaphorical) sense that implies the possibility of interfering government—namely, the law-giving but perhaps also law-changing activity of gods or God? Or are we definitely dealing with notions of cosmic regularities “before there was nature,” as F. Rochberg puts it?<sup>8</sup> It is to Rochberg’s credit to have questioned an all too naïve use of concepts such as “cosmology” or “nature” with regard to a world “before nature.”<sup>9</sup> Such a world would have no con-

<sup>4</sup> Schmid, this volume, pp. 3ff. Cf. earlier comments by D. Pingree, “Hellenophilia versus the History of Science,” *Isis* 83 (1992), 554–563; and F. Rochberg, *The Heavenly Writing: Divination, Horoscopy, and Astronomy in Mesopotamian Culture* (Cambridge, UK: Cambridge University Press, 2004), 14–43.

<sup>5</sup> See above pp. 22ff, 27f, 36.

<sup>6</sup> See above pp. 2f, 8.

<sup>7</sup> Debate on the use of the concept of “science” for ancient Near Eastern divination etc. surfaces regularly, see (*inter alia*) U. Jeyes, “Divination as a Science in Ancient Mesopotamia,” *JEOL* 32 (1991–1992), 23–41; F. Rochberg, “Empiricism in Babylonian Omen Texts and the Classification of Mesopotamian Divination as Science,” *JAOS* 119 (1999), 559–569, revised and extended in ead., *The Heavenly Writing* (n. 4), 237–299; J. Ritter, Science and Reason in Ancient Mesopotamia, in *Et il y eut un esprit dans l’Homme. Jean Bottéro et la Mésopotamie* (ed. X. Faivre, B. Lion and C. Michel; Travaux de la Maison René-Ginouvès 6; Paris: De Boccard, 2009), 83–103.

<sup>8</sup> This volume, pp. 22ff.

<sup>9</sup> Several recent monographs on ancient Near Eastern and ancient Mediterranean conceptual history use “Before” as a catch-word. See B. Nongbri, *Before Religion: A History of a Modern Concept* (New Haven, CT: Yale University Press, 2013); M. van de Mieroop,

cept of physical nature functioning as a self-contained reality, operating in its own terms and according to rules that even major gods or God would not be able to overrule.

Clearly, the scholars writing in this volume neither have nor seek a common definition of “nature.” Each one used the concept of “nature” in a somewhat heuristic sense as a starting point for identifying particular phenomena or parts of “reality” as experienced by the ancients and discursively addressed in ancient Near Eastern sources. Thus “nature” may be the food chain observed among animals (F. Naether); rainbows (W. Horowitz); the ways of stars (M. Albani); external matter, from planets to monstrous freak, to be investigated through diviners’ methodical observation and quest for reliable truth (F. Rochberg); or “creation” as such (D. P. Wright, J. L. Cooley).<sup>10</sup> Alternatively, as a starting point one could take K. Schmid’s programmatic introduction and identify as “nature” those external, physical realities that both his and E. Ziesel’s prooftexts address in terms of “commandments” (*mišwôt*) or “ordinances” (*ḥuqqôt, ḥuqqîm*). We would then focus on a limited number of strong cases of large-scale phenomena on which the average human, especially in antiquity, had no impact. Examples of such phenomena include wind and water, weather, light by day and night. In other words, they involve physical realities that modern science investigates in terms of astronomy, meteorology, and geology. It is certainly no coincidence that when exalting the supreme power of a “big boss,” biblical texts (or *Enūma eliš*, for that matter) should mobilize as his servants phenomena that from a human perspective are the most extraordinary in “nature.” But there is more to “nature” (at least as *we* understand it) that could be subject to the concept of “law of nature,” but that biblical and other ancient Near Eastern authors seem not to have considered in such terms.

What strikes me, therefore, beyond the mere fact that ancient authors *did* address phenomena that *we* tend to apprehend as “nature” in terms of “law” and “order,” is that they did so in very specific, and sometimes rather peculiar ways.

One question arising from our collection of essays might be whether we should pay more attention to some commonalities that seem to characterize ancient Near Eastern conceptual approaches to physical reality (*our* “nature”) in general, whether in late second-millennium Babylonia, first-

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*Philosophy Before the Greeks: The Pursuit of Truth in Ancient Babylonia* (Princeton, NJ: Princeton University Press, 2015).

<sup>10</sup> On the relation between ancient Mesopotamian concepts of “science” and “creation,” see R. K. Koev, *The Babylonian Astrolabe. The Calendar of Creation* (SAAS 22; Publications of the Foundation for Finnish Assyriological Research 7; Helsinki: The Neo-Assyrian Text Corpus Project, 2013); W. Horowitz, *The Three Stars Each: The Astrolabes and Related Texts* (AfO.B 33; Wien: Institut für Orientalistik, 2014).

millennium Assyria, exilic or post-exilic Judah, Late Period or even Greco-Roman Egypt. Or should we instead privilege the peculiarities and differences between the various areas, contexts, literary genres, professions, and scholarly culture as reflected in the sources, including differences in approach that can be observed within smaller socio-cultural units such as 7<sup>th</sup>-century Assyria,<sup>11</sup> the Judahite exiles in Babylonia,<sup>12</sup> or post-exilic Judah. To be sure, several contributors in this volume approach their subject matter in terms of broad cultural analysis, assuming more or less coherent (ancient Near Eastern, Mesopotamian, Egyptian) worldviews and arguing that the same (or very similar) ways of reasoning about ‘laws’ in ‘nature’ were at work in, e. g., divination, civil legislation, ritual and even moral education in certain societies or civilizations. F. Naether, following J. P. Allen’s theory of “a persistently uniform [ancient Egyptian, C. U.] understanding of what the universe is and how it came to be,” offers an interesting sociological argument for what she considers to be structural similarities between texts of various genres: “formulations in (...) rituals, legal texts and knowledge texts (‘Wissenstexten’)” show “a similar structure” because “these spheres were closely related in terms of persons, institutions and concepts.”<sup>13</sup> F. Rochberg, on the other hand, points to differences between omens and legal texts despite the use of identical syntax, which for some scholars is a major argument for closely connecting observational divination with the notion of “laws in nature.” For Rochberg, “the crux lies in the respective criteria by which the collected statements ‘If P, then Q’ are taken as law-like. Conceived (or perceived) as omen statements, the law-like nature of phenomena is a function of their being correlated with other, mostly social, phenomena, rather than there being a conception of lawhood intrinsic to the phenomena themselves. In *Enūma Anu Enlil*, the systematic

<sup>11</sup> D. R. Brown, The Scientific Revolution of 700 BC, in *Learned Antiquity: Scholarship and Society in the Near East, the Greco-Roman World, and the Early Medieval West* (ed. A. A. McDonald, M. W. Twomey and G. J. Reinink; Leuven: Peeters, 2003), 1–12. See also G. B. Lanfranchi, Scholars and Scholarly Traditions in Neo-Assyrian Times, *SAAB* 3 (1989), 99–114; from a different angle, F. Rochberg, “Canonicity in Cuneiform Texts,” *JCS* 36 (1984), 127–144 = ead., *In the Path of the Moon* (n. 1), 65–84.

<sup>12</sup> Hints on the latter’s exposure to Babylonian scholarship have been collected from the book of the prophet Ezekiel, see recently A. Winitzer, “Assyriology and Jewish Studies in Tel Aviv: Ezekiel among the Babylonian literati,” in *Encounters by the Rivers of Babylon. Scholarly Conversations Between Jews, Iranians and Babylonians in Antiquity* (ed. U. Gabbay & Sh. Secunda; TSAJ 160; Tübingen: Mohr Siebeck, 2014), 163–216; J. Stökl, “‘A Youth Without Blemish, Handsome, Proficient in all Wisdom, Knowledgeable and Intelligent’: Ezekiel’s Access to Babylonian Culture,” in *Exile and Return. The Babylonian Context* (ed. J. Stökl and C. Waerzeggers; BZAW 478; Berlin: W. de Gruyter, 2015), 223–252; C. Uehlinger, “Virtual Vision vs. Actual Show: Strategies of Visualization in the Book of Ezekiel,” *Welt des Orients* 45 (1, 2015: Ezekiel in its Babylonian Context), 62–84.

<sup>13</sup> This volume, p. 70 (my translation).

structure imposed upon the phenomena for the purpose of their codification as signs and thus their inclusion within the series (...) does not seem to argue for an interest in the inherent lawhood of physical phenomena in any way similar to our thinking about laws of nature."<sup>14</sup> One might still ask whether the scholars working on *Enūma Anu Enlil* and experts in legal reasoning followed similar rules and shared the same assumptions in terms of worldview and physical reality. Do we know enough about issues such as how their knowledge was formed; whether they had followed the same scribal curriculum or slightly different ones; at what stage of their education they would have branched off in different directions and specialized in distinct areas of expertise, so that the importance of their using a (syntactically) similar "language game" would be relativized?<sup>15</sup> I do not.

Reading the papers of this book alongside each other, my impression is that beyond some obvious "ancient Near Eastern" commonalities and similarities that point to specific tradition-historical links (e. g., the dependence of some biblical or Henochoic materials on textual knowledge gained from Mesopotamian sources or, more probably, Aramaic intermediaries), most biblical texts adduced by E. Zisler and K. Schmid as forerunners to the formulation of "laws of nature" reflect a rather different world and worldview from their Mesopotamian cousins. This point holds whether one considers omen collections and technical compendia such as *Enūma Anu Enlil* or, *a fortiori*, mathematical tables. To state my point in a very general way: All the texts analyzed in this volume reflect certain sets of socially and culturally conditioned *knowledge* and, more specifically, some form of authorized knowledge (at least from the point of view of their authors and/or transmitters). The fact that the authority of this knowledge may have been, and in some instances, demonstrably was, contested is another matter.<sup>16</sup> On what source(s) of authority did this knowledge rely? One may assume (or speculate) that a given statement's authority would only partially (if at all) be deduced from its intrinsic conceptual plausibility (the validity of its argument, so to speak).<sup>17</sup> Another, no less important source of

<sup>14</sup> This volume, p. 38.

<sup>15</sup> See N. Veldhuis, "The Theory of Knowledge and the Practice of Celestial Divination," in *Divination and Interpretation of Signs in the Ancient World* (ed. A. Annus; Oriental Institute Seminars 6), Chicago: The University of Chicago Press, 2010), 77–91. R. Pirngruber discusses a case of "inter-disciplinary" knowledge transfer in "The Historical Sections of the Astronomical Diaries in Context: Developments in a Late Babylonian Scientific Text Corpus," *Iraq* 75 (2013), 197–210. Many others could probably be adduced.

<sup>16</sup> That there was competition among Mesopotamian scholars is out of question, as we know mainly from letters. But did it find any direct expression in the scholarly texts?

<sup>17</sup> I should stress that such would be the case in technically sophisticated domains of ancient Near Eastern "science," such as mathematics. There is virtually no myth and little metaphor in Assyro-Babylonian mathematical procedures, on which see, e. g., M. Ossendrijver, *Babylonian Mathematical Astronomy: Procedure Texts* (Sources and Studies

authority—that ultimately allowed the statement’s preservation and transmission—must have been the institutional context in which it was uttered and preserved. This context could have been an office of scholars or even an “academy” in the case of Mesopotamian omen compendia, a school of scribes; and/or “disciples” of a particular prophetic or legal school in the case of biblical texts (and of the Henochic tradition). Part of the Mesopotamian textual record adduced in this volume would have counted as “secret” knowledge, which implies a professional guild’s claim to authority.<sup>18</sup> The last source of authority (foremost to be contested by rival opinions, as far as we can judge from biblical polemics) would have been the claim that the knowledge expressed by this prophet or that school had its origin with the gods, or God, representing not divinely sanctioned knowledge but words of gods or God as such. J. L. Cooley makes a strong case for situating Isa 2:1–4 in the larger context of ancient Near Eastern divination. Interestingly enough, the biblical text, if understood that way, takes a polemical stance against Assyrian and Mesopotamian divination, claiming superior knowledge sanctioned by Yahweh from Zion. It is thus striking that most of E. Ziesel and K. Schmid’s prooftexts are equally engaged in exaltation or polemics, whether against Judahite or non-Israelite rival opinions. Readers notice that the way in which many biblical texts quoted in this book (except the PH complex studied by D. P. Wright, which had another purpose altogether)<sup>19</sup> refer to what K. Schmid tentatively calls “laws of nature” are written in a heavily committed, strongly emphatic, often polemicizing tone. They appeal to a given ordinance or set of rules not in metareflexive way in view of that particular cosmic rule or regularity as such, but with the aim of silencing opponents by referring to the obvious or uncontestable (just as

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in the History of Mathematics and Physical Sciences; New York: Springer, 2012). On the other hand, mathematics and astronomy could and did impact on and foster new interpretations of myth, see W. Horowitz, “Stars, Cows, Semicircles and Domes: Astronomical Creation Myths and the Mathematical Universe,” in *A Woman of Valor: Jerusalem Ancient Near Eastern Studies in Honor of Joan Goodnick Westenholz* (ed. W. Horowitz, U. Gabbay and F. Vukosavović; Biblioteca del Próximo Oriente Antiguo 8; Madrid: Consejo Superior de Investigaciones Científicas, 2010), 73–86. The opening of *Enūma Anu Enlil* Tablet I, to mention only one example, remains fully mythological and metaphoric, although there is progression towards “plan” or “design” from the Sumerian to the Akkadian version. In contrast, Tablet XXII can be called astronomical and “(proto-)scientific.”

<sup>18</sup> A. Lenzi, *Secrecy and the Gods: Secret Knowledge in Ancient Mesopotamia and Biblical Israel* (SAAS 19; Helsinki: The Neo-Assyrian Text-Corpus Project / Helsinki University Press, 2007).

<sup>19</sup> Read in the context of our conference topic, this is much more about the non-universal, or distinctively Israelite. PH provides to its readers (and followers) a higher knowledge system of sorts. Although developed out of the universally human (in the primeval history of Genesis 1–11), this system is meant to surpass non-Israelite knowledge and thus goes beyond what we might term “natural law,” however “true” it may claim to be.

Yahweh justifies himself against the accusations of Job to the well-known effect that Job will ultimately submit). They use what in German would be called a *Hammer-* or even *Totschlagargument*.

Such polemic is absent from the more scholastic omen collections and, as far as I am aware, from most other Mesopotamian texts related to divination. Why should this be so? The reason that seems most plausible to me is that these compendia apparently did not have to compete for their validity and recognition because they had a very different *Sitz im Leben*. They offer compilations of authorized knowledge solidly anchored in at least three foundations: accumulated tradition; observation and experience (which in mathematized contexts allowed for ever more precise prediction of stellar "events"); and institutional prestige.<sup>20</sup> Speaking again in very general terms, it would seem that the formulation *sine ira et studio* of "laws," whether concerned with social order, the order of "nature" or the "cosmos," flourishes more easily in highly stratified and functionally differentiated societies with a complex state bureaucracy to offer the necessary personnel and infrastructure for developing scholarship and "scientific" expertise (with some technical disciplines relatively detached from the immediate demands of "religious" institutions and their patron gods).<sup>21</sup> It would be far less likely to flourish in less differentiated social contexts like those that prevailed in Judah or among the Judahite exiles near Nippur, for example. Call it center and periphery, differences in the complexity of social systems, or otherwise: The development of stable, authorized knowledge, let alone knowledge that one might arguably qualify as scientific, requires infrastructures, technical devices for regular observation and thus a degree of institutional stability that was available in major cities of greater Mesopotamia and Egypt but hardly on the Levantine periphery. That the former should develop technically more sophisticated knowledge, including mathematical expertise, to a much higher degree than the latter, where astronomy (and related technical disciplines) would always to a large extent remain "poetic"<sup>22</sup> rather than scientific *stricto sensu* (if it was not right away rejected) comes as no surprise.

<sup>20</sup> Cf. F. Rochberg, "Observing and describing the world through divination and astronomy," in *The Oxford Handbook of Cuneiform Culture* (ed. K. Radner and E. Robson; Oxford / New York: Oxford University Press, 2011), 618–636.

<sup>21</sup> On the issue of "disenchantment," see D. R. Brown, "Disenchanted with the Gods? The advent of accurate prediction and its influence on scholarly attitudes towards the supernatural in ancient Mesopotamia and ancient Greece," in *Your Praise is Sweet: A Memorial Volume for Jeremy Black from students, colleagues and friends* (ed. H. D. Baker, E. Robson and G. Zólyomi; London: British Academy, 2010), 11–28.

<sup>22</sup> Reference to the wonderful title of J. L. Cooley's book *Poetic Astronomy in the Ancient Near East: The Reflexes of Celestial Science in Ancient Mesopotamian, Ugaritic, and Israelite Narrative* (History, Archaeology, and Culture of the Levant 5; Winona Lake, IN: Eisenbrauns, 2013).



Interestingly enough, however, it is the more contested and thus slightly instable (and more parochial) knowledge of biblical prophets and priests that survived in discrete, recognizeable form in the stream of tradition—not least because it was of a rather simple, straightforward and relatively non-technical character conducive to reinterpretation, reattribution and actualization. By contrast, the apparently more solid, technically sophisticated and highly differentiated knowledge of Mesopotamian scholars partly lost its social impact with the downfall of the state administrations that supported it—maybe for the better of science, which changed from former *Herrschaftswissen*<sup>23</sup> to knowledge *tout court*. Rather than royalty, it was now the major Babylonian temples that supported scholarship and produced “science,” including what we might term “progress in scientific method.”<sup>24</sup> It is during the Persian and Hellenistic periods that contacts between Mesopotamian and Greek scholars allowed knowledge transfer to the West,<sup>25</sup> including western Judaism.<sup>26</sup> But that knowledge also diffused and transmuted into technically less demanding environments, as we may

<sup>23</sup> B. Pongratz-Leisten, *Herrschaftswissen in Mesopotamien. Formen der Kommunikation zwischen Gott und König im 2. und 1. Jahrtausend v. Chr.* (SAAS 10; Helsinki: The Neo-Assyrian Text Corpus Project / Helsinki University Press, 1999).

<sup>24</sup> F. Rochberg, “The Cultural Locus of Astronomy in Late Babylonia,” in *Die Rolle der Astronomie in den Kulturen Mesopotamiens* (ed. H. D. Galter; Grazer Morgenländische Studien 3; Graz: rm-Druck- & Verlagsgesellschaft, 1993), 31–45, esp. 33: “...the single institution of Mesopotamian civilization that remained in this late period, and so was the sole carrier of cultural forms such as cuneiform writing, Babylonian cult, so-called ‘cuneiform law,’ and of course, astronomy and astrology.” See further H. Hunger, *Astrology and Other Predictions in Mesopotamia. Mesopotamian Astronomy in the Achaemenid and Hellenistic Periods* (Conferenze IsMEO 10; Roma: Istituto italiano per l’Africa e l’Oriente, 1997).

<sup>25</sup> E. g., A. C. Bowen / B. R. Goldstein, “Meton of Athens and Astronomy in the Late Fifth Century B.C.,” in *A Scientific Humanist. Studies in Memory of Abraham Sachs* (ed. E. Leichty; M. de J. Ellis and P. Gerardi; Occasional Publications of the Samuel Noah Kramer Fund 9; Philadelphia: University of Pennsylvania Press, 1988), 39–81; F. Rochberg, “Elements of the Babylonian Contribution to Hellenistic Astrology,” *JAOS* 108 (1988), 51–62 = *In the Path of the Moon* (n. 1), 143–166; A. Jones, “The Adaptation of Babylonian Methods in Greek Numerical Astronomy,” *Isis* 82 (1991), 441–453; S. M. Chiodi, “Plato and the Mesopotamian Astronomy,” in *Ideologies as Intercultural Phenomena. Proceedings of the Third Annual Symposium of the Assyrian and Babylonian Intellectual Heritage Project* (ed. A. C. D. Panaino and G. Pettinato; Melammu 3; Milano: Associazione Culturale Mimesis, 2002), 53–60; C. Williams, “Some Details on the Transmission of Astral Omens in Antiquity,” in *From the Banks of the Euphrates: Studies in Honor of Alice Louise Slotsky* (ed. M. Ross; Winona Lake, IN: Eisenbrauns, 2008), 295–318; F. Rochberg, “God-Talk and Star-Talk in Cuneiform and Its Legacy in Later Antiquity,” in *Gazing on the Deep. Ancient Near Eastern and Other Studies in Honor of Tzvi Abusch* (ed. J. Stackert, B. N. Porter and D. P. Wright; Bethesda, MD: CDL Press, 2010), 189–200.

<sup>26</sup> See, e. g., A. Y. Reed, “2 Enoch and the Trajectories of Jewish Cosmology: From Mesopotamian Astronomy to Greco-Egyptian Philosophy in Roman Egypt,” *The Journal of Jewish Thought and Philosophy* 22 (2014), 1–24.

infer from the Babylonian Talmud and other receptacles for eastern wisdom of Late Antiquity.<sup>27</sup>

The knowledge pursued and developed by individuals and small communities of teachers and students in Ionia and Greece, such as the Pre-socratics and the Pythagoreans, was of yet another kind. That it would ultimately lead humanity further than the more tradition-bound Mesopotamian scholarship can partly be explained by Greek and Roman scholars' greater distance (intellectual independence?) from the demands of more narrowly "religious" stakeholders and their deities.

Conceived in broad terms and in an almost *longue durée* perspective, there seems to be a movement of nascent science from "heavenly laws" to "laws of nature," and from expressions of cosmic order in terms of laws and ordinances to an ever more physical, measuring and mathematical construction of "nature." But one also sees another movement from astral divination to astrology.<sup>28</sup> These two movements remained long entangled and it took centuries beyond the history of ancient Near Eastern science before astronomy and astrology, or "science" and "magic," would clearly bifurcate. As we know, religion more often sided with myth and magic rather than with science in the process.<sup>29</sup> Whereas the use of law-like language to address the "cosmos" can only be understood metaphorically, this is no more the case of "laws of nature" in the modern sense.<sup>30</sup> Interestingly enough, however, numbers and mathematic formulae have never completely outruled the metaphor of old, and despite the fact that the formulae of contemporary science are exclusively expressed in highly abstract mathematical terms, we continue to call them "universal laws," forgetting as it were that there can be no law without legislators—as if there were someone, somewhere, who at some time decreed these laws and might change them, for better or worse.

<sup>27</sup> F. Rochberg, "God-Talk and Star-Talk in Cuneiform and Its Legacy in Later Antiquity," in *Gazing on the Deep. Ancient Near Eastern and Other Studies in Honor of Tzvi Abusch* (ed. J. Stackert, B. N. Porter and D. P. Wright; Bethesda, MD: CDL Press, 2010), 189–200.

<sup>28</sup> See D. Pingree, *From Astral Omens to Astrology: From Babylon to Bikaner* (Serie Orientale Roma 78; Rome: Istituto italiano per l'Africa et l'Oriente, 1997).

<sup>29</sup> S. J. Tambiah, *Magic, Science, Religion, and the Scope of Rationality* (Cambridge, UK: Cambridge University Press, 1990); J. H. Brooke, *Science and Religion: Some Historical Perspectives* (The Cambridge History of Science Series; Cambridge, UK: Cambridge University Press, 1991); R. Styrer, *Making Magic: Religion, Magic, and Science in the Modern World* (Oxford: Oxford University Press, 2004); T. Dixon / G. Cantor / S. Pumfrey (eds.), *Science and Religion. New Historical Perspectives* (Cambridge, UK: Cambridge University Press, 2010).

<sup>30</sup> Cf. S. Roux, "Les lois de la nature à l'âge classique: la question terminologique," *Revue de synthèse* 4e série, nos. 2–4 (2001), 531–576.



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ACADEMIC PRESS FRIBOURG  
VANDENHOECK & RUPRECHT GÖTTINGEN

## Summary

In Western academic contexts, the idea of “laws of nature” is often regarded as having originated among the Presocratics, Plato, and the Stoics. But this view is historically incorrect. Legal interpretations of cosmic phenomena go back to the ancient Near East, where such understandings also emerged in the Hebrew Bible. The present volume analyzes texts relevant to this topic, developing a fresh approach to portrayals of “laws of nature” from antiquity.

K. Schmid draws attention to some blind spots of Western history of science and to biblical texts mentioning “laws of heaven” (*huqqôt šāmayîm*, Job 38:33), “laws of heaven and earth” (*huqqôt šāmayîm wā’āreṣ*, Jer 33:25) or “ordinances” (*huqqôt*) imposed on the moon and the stars (Jer 31:25). Such concepts can be compared to the Mesopotamian notion of a supreme god establishing like a legislator the rules of cosmic order. That background is elucidated in detail by F. Rochberg, whose contribution considers the Mesopotamian trope of the divine judiciary and its extension to the physical world, and discusses the question whether the case-law formulation of Akkadian omen statements (protasis-apodosis, “if P, then Q”) should be understood as evidence for a law-like understanding of cosmic order. W. Horowitz starts from Gen 9:12–17 to study the Akkadian terminology and ominous interpretations of the rainbow, which can be either benefic or malefic. F. Naether in a broad survey demonstrates that in Egypt, too, divination operated with law-like notions; she reviews texts which discuss natural phenomena without necessarily relating them to divine agency, and identifies early attempts to a “philosophy of nature.” D. P. Wright, who offers a detailed study of law and creation in the Priestly-Holiness writings of the Pentateuch, highlights the differentiation established between universal conditions in creation, on the one hand, and knowledge (on sacrifice, the calendar, purity and holiness, the name of Yahweh and his *kābôd*) made specifically available to Israel as Yahweh’s chosen people, on the other. J. L. Cooley analyzes Isa 2:1–4 against the background of ancient Mesopotamian divination, concluding that the biblical oracle provides a counter-narrative to Mesopotamian traditions regarding the effectiveness and antiquity of its divination tradition. M. Albani argues that in 1 Enoch the focus on astronomy and astral regularity forms the basis of an ideal calendar of 364 days, whose constance should serve as an antidote to anomia experienced in Hellenistic-period “Enochic Judaism.” J. Hüfner, professor emeritus of theoretical physics, reviews some elementary astronomical principles discovered in antiquity, such as periodicity, increasing use of mathematics, and of models to apprehend the planetary system. C. Uehlinger summarizes common views and divergencies between the various materials surveyed, stressing the problematic status of the concept of “nature” with regard to ancient Near Eastern materials while pointing out the longevity, all but obvious after all, of the legal metaphor which still operates in contemporary discourse on “laws of nature.”



### *Zu diesem Buch*

Das wissenschaftsgeschichtliche Gedächtnis des Abendlandes erkennt die Ursprünge der Idee von ‚Naturgesetzen‘ bei den Vorsokratikern, Platon und der Stoa. Die rechtsförmige Interpretation kosmischer Phänomene reicht jedoch in den Alten Orient zurück und hat auch Eingang in die alttestamentliche Literatur gefunden. Der vorliegende Band erschliesst und analysiert die entsprechenden Texte und formuliert so einen neuen Zugang zur Vorstellung von ‚Naturgesetzen‘ in der Antike.

K. Schmid weist auf ‚blinde Flecken‘ der westlichen Wissenschaftsgeschichtsschreibung hin und präsentiert dann biblische Texte, die von „Himmelsordnungen“ (*huqqôt šāmayīm*, Hiob 38,33), „Ordnungen von Himmel und Erde“ (*huqqôt šāmayīm wā’āreš*, Jer 33,25) oder „Ordnungen“ (*huqqôt*) sprechen, die dem Mond und den Sternen auferlegt sind (Jer 31,25). Diese Vorstellungen lassen sich mit mesopotamischen Überlieferungen (insbesondere in *Enūma eliš*) vergleichen, wonach ein Höchster Gott einem Gesetzgeber gleich die Regeln und Ordnungen des Kosmos festlegt. F. Rochberg beleuchtet diesen Hintergrund in einer aspektreichen Studie; sie diskutiert zum einen den mesopotamischen Topos des göttlichen Gesetzgebers und seine Anwendung auf die physische Welt, zum andern die Frage, ob die syntaktisch mit Rechtssätzen übereinstimmende Formulierung von Omina (Protasis und Apodosis, „wenn A, dann B“) als Hinweis auf ein rechtsförmiges Verständnis der Wirklichkeit verstanden werden kann. W. Horowitz untersucht, ausgehend von Gen 9,12–17, die akkadische Terminologie und ominöse Interpretationen des Regenbogens, der als positives wie negatives Zeichen gedeutet wurde. F. Naether weist in einem breiten Survey nach, dass die Divination auch in Ägypten mit gesetzesförmigen Vorstellungen operierte; sie weist auf Texte hin, die Naturphänomene ohne notwendigen Bezug zu einer Schöpfergöttheit thematisieren, und beobachtet Ansätze zu einer altägyptischen ‚Naturphilosophie‘. D. P. Wright untersucht das Verhältnis von Gesetz und Schöpfung in Texten des Pentateuch, die der Priesterschrift und der Heiligkeitsschule zugeschrieben werden. Sein Beitrag betont den Unterschied zwischen universalen Bedingungen von Schöpfung und *conditio humana* einerseits, einem nur Israel zugänglichen, spezifischen Wissen (über Opfer, den Kalender, Reinheit und Heiligkeit, JHWHs Namen und seinen *kābôd*) andererseits. J. L. Cooley deutet Jes 2,1–4 vor dem Hintergrund altesopotamischer Divination als *counter-narrative*, der sich kritisch mit Annahmen bezüglich Alter und Leistungsfähigkeit der mesopotamischen Divinationstradition auseinandersetzt. M. Albani schliesst aus dem Interesse von 1 Henoch an Astronomie und Regelmäßigkeit astraler Bewegungen, die als Grundlage für einen 364-Tage-Idealkalender der Gerechten dienen, dass die Regularität und Periodizität der astralen Ordnungen (gleichsam ein ‚Naturgesetz‘) die dunkle Anomie der Welt- und Gotteserfahrung in hellenistischer Zeit lichten sollte. Der Physiker J. Hüfner bietet einen Überblick über wichtige in der Antike entdeckte, naturwissenschaftliche Prinzipien wie die Periodizität, die wachsende Bedeutung mathematischer Wirklichkeitserfassung und von Modellen zur Erklärung des Planetensystems. Ch. Uehlinger fasst Gemeinsamkeiten und Differenzen zwischen den verschiedenen Beiträgen und den ihnen zugrundeliegenden Materialien zusammen; er betont einerseits den im Blick auf altorientalische Quellen problematischen Status des Begriffs der „Natur“, zum andern die erstaunliche Langlebigkeit der Metapher „Naturgesetz“, die auch aus zeitgenössischen Wissenschaftsdiskursen nicht wegzudenken ist.